

# Create Your Own Quad

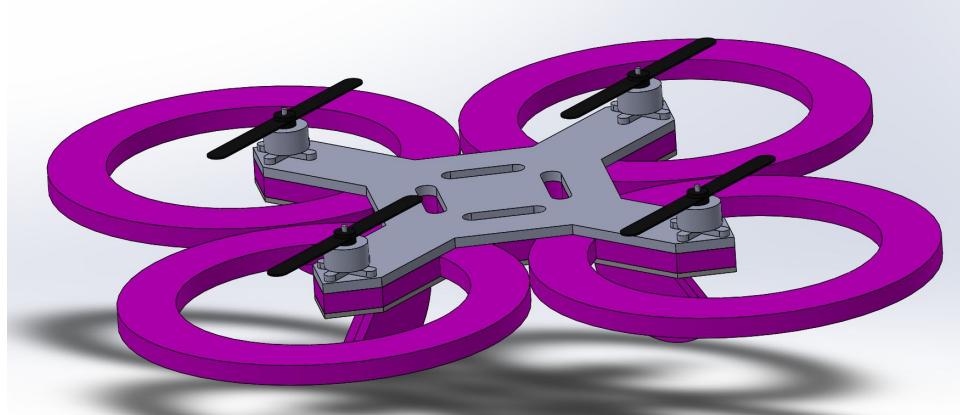


Gabby (Big G) &  
Jesus (Big J)

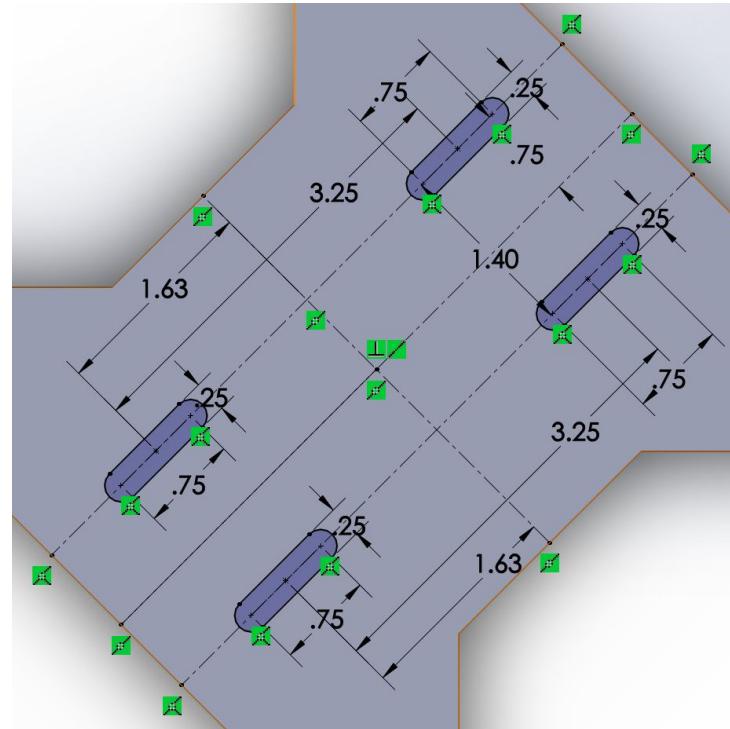
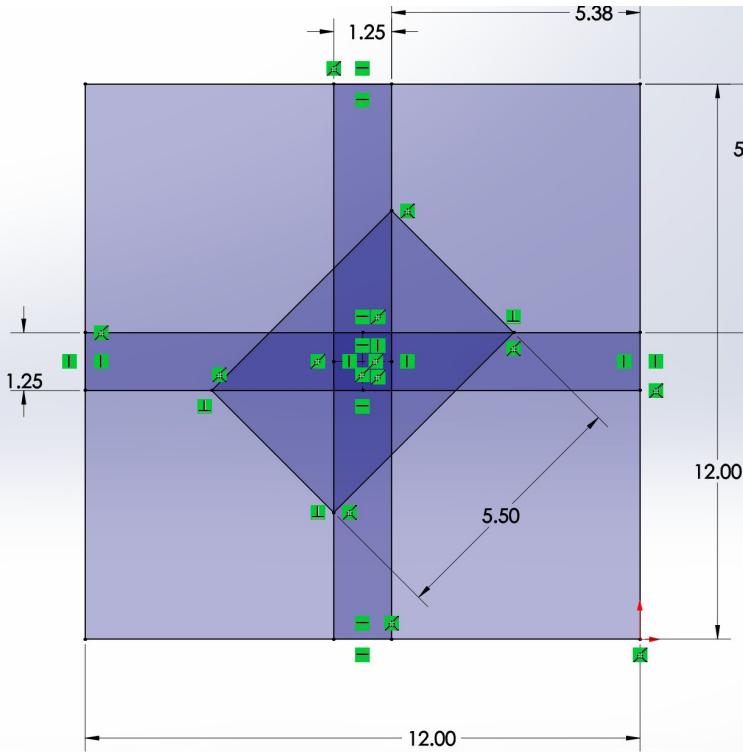
# SOLIDWORKS

## Things to Consider When Designing

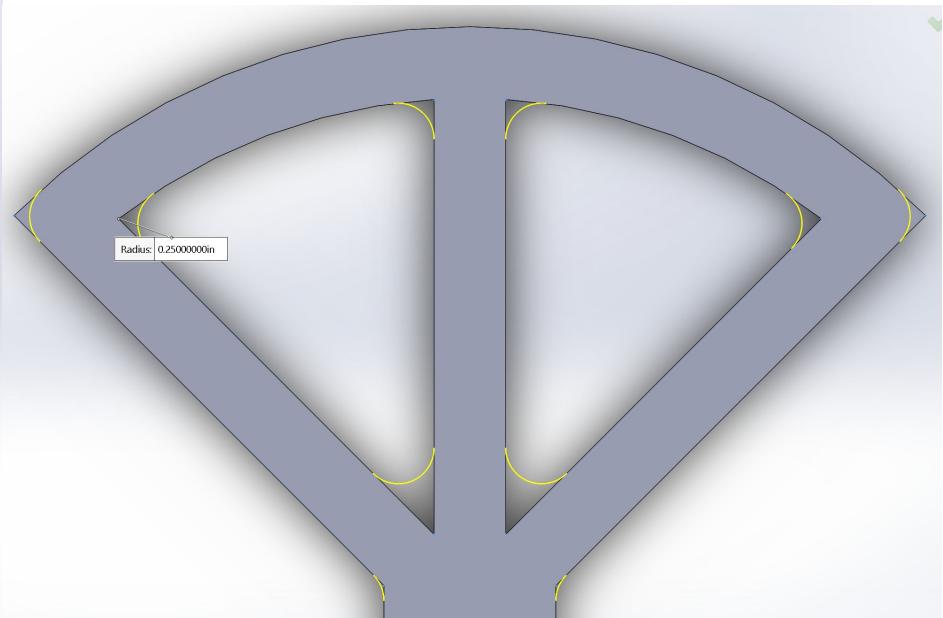
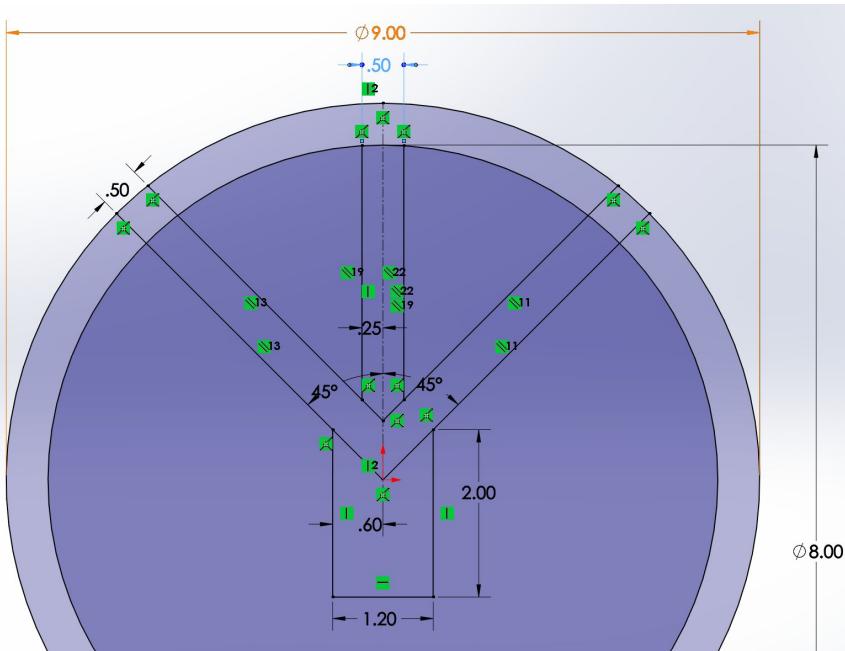
- Weight
- Manufacturability
- Strength of Material
- Easily replaceable components
  - Propeller guards
  - Landing Gear
- Spacial awareness
  - How and where will components fit?



# SOLIDWORKS



# SOLIDWORKS



A close-up photograph of a person's hands working on a mechanical assembly. One hand holds a small brass-colored cylindrical part, while the other uses a screwdriver to tighten a bolt into it. The assembly appears to be made of black plastic or metal components. In the background, a workbench is visible with various tools and parts scattered across it. A green power drill lies on the bench to the right. The scene is set in a workshop environment with shelves containing boxes and equipment in the background.

# Assembly

# ASSEMBLY

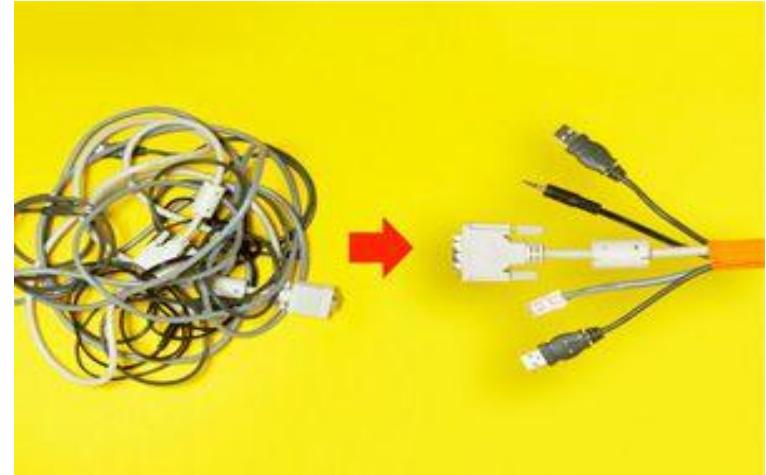
- It's best to construct the base first and work outward.
- Steps
  - Base pieces
  - Prop guards and motors
  - ESC's
  - NAZA
  - Transmitter
  - Voltage Regulator and LED
- Anything screwed in should be reinforced (tightened) to ensure stability.

# Electronics



# ELECTRONICS

- NAZA
- Be sure to pay close attention to wiring so that you don't short circuit any important components. (labels are on components)
- Organization is trivial because it allows easy assessment and manageability.

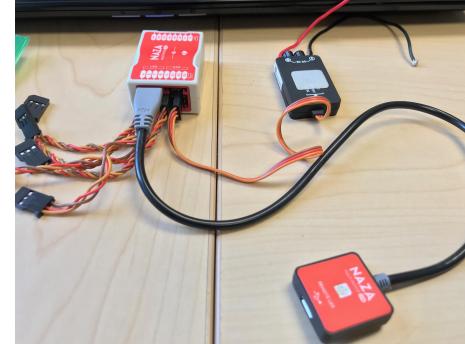
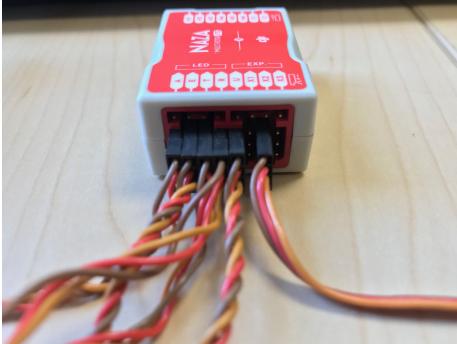


# ELECTRONICS

## 1

### Connecting NAZA and Voltage regulator

- Insert voltage regulator and threaded wires into the NAZA on the side that says AETRU
- Make sure brown wire is up
- Insert threaded wires into A.E.T.R.U, and X2
- Insert the NAZA LED into the LED slot above the 5 threaded

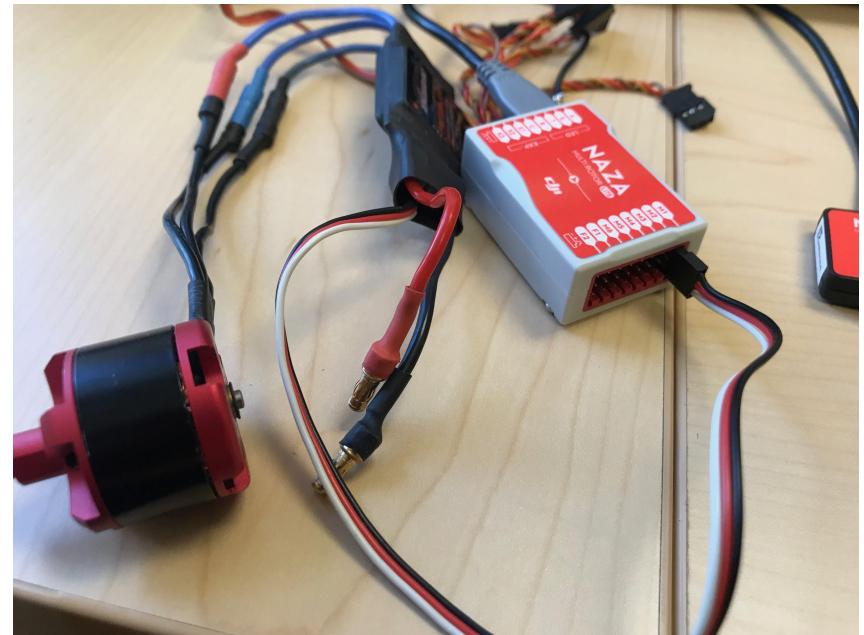


# ELECTRONICS

2

## Connecting Motors

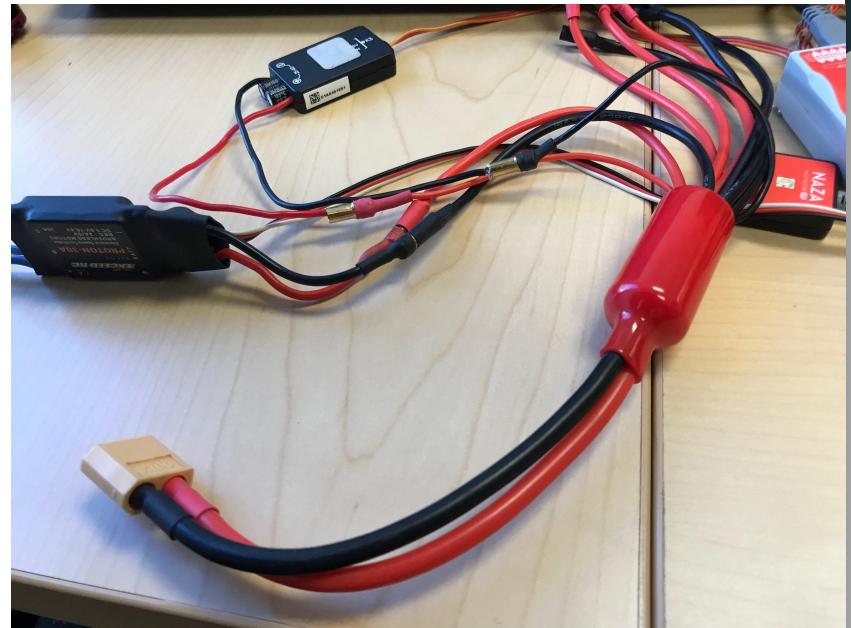
- Insert the ESCs into the NAZA on the M side (fill spots M1-M4)
- Make sure black wire is up
- Connect the motor to the ESC (wire order doesn't matter)



# ELECTRONICS

## 3 Connecting Squid

- Insert the ESC's power and ground wires into the thicker squid cables.
- Connect the red and black wires of the voltage regulator to the 2 thinner squid cables
- Make sure red and black wires match

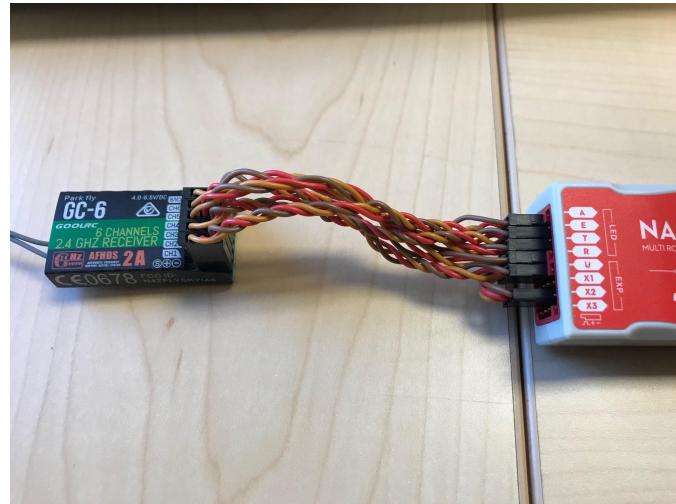


# ELECTRONICS

## 4

### Connecting Receiver

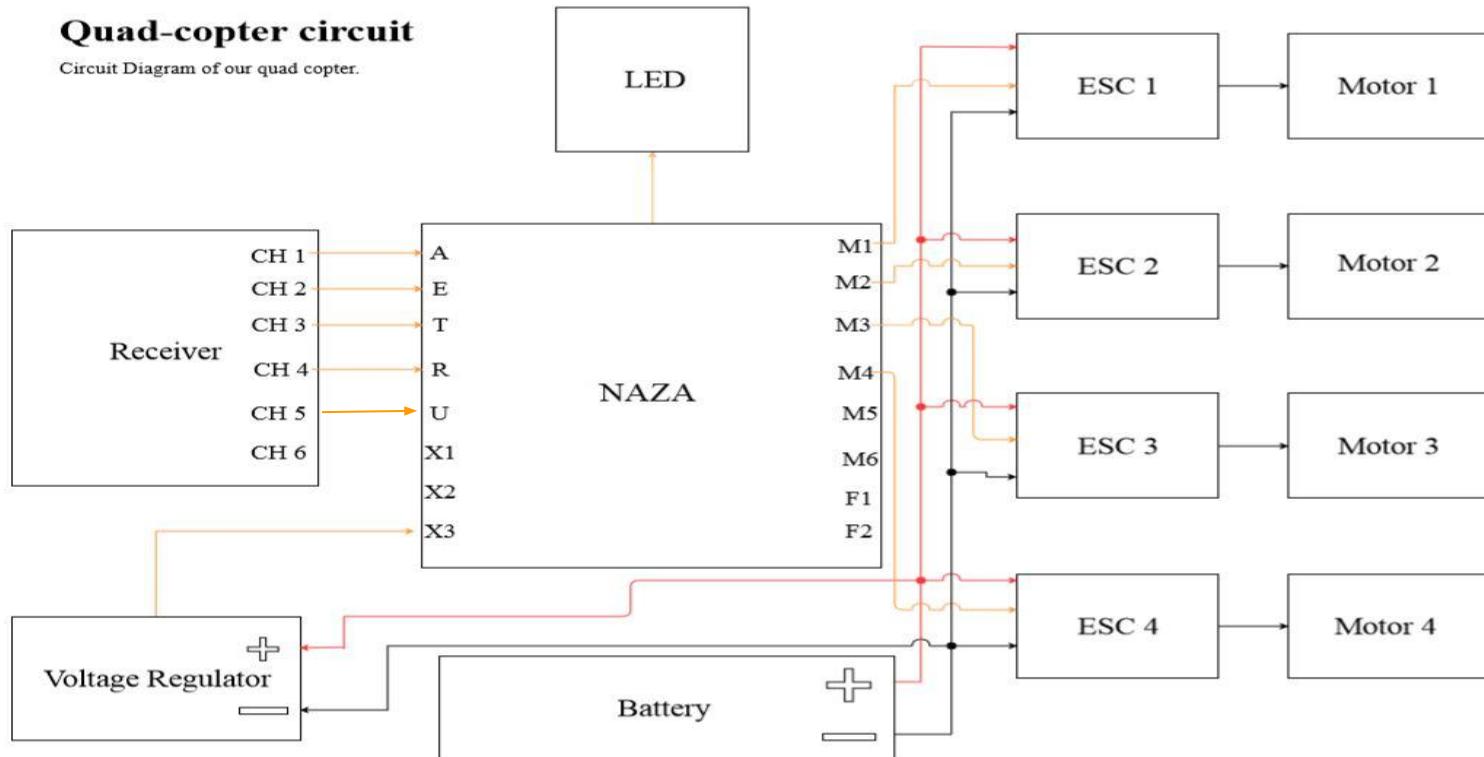
- Connect A to CH1, E to CH2, T to CH3, R to CH4, U to CH5
- Orange wires closest to antennas

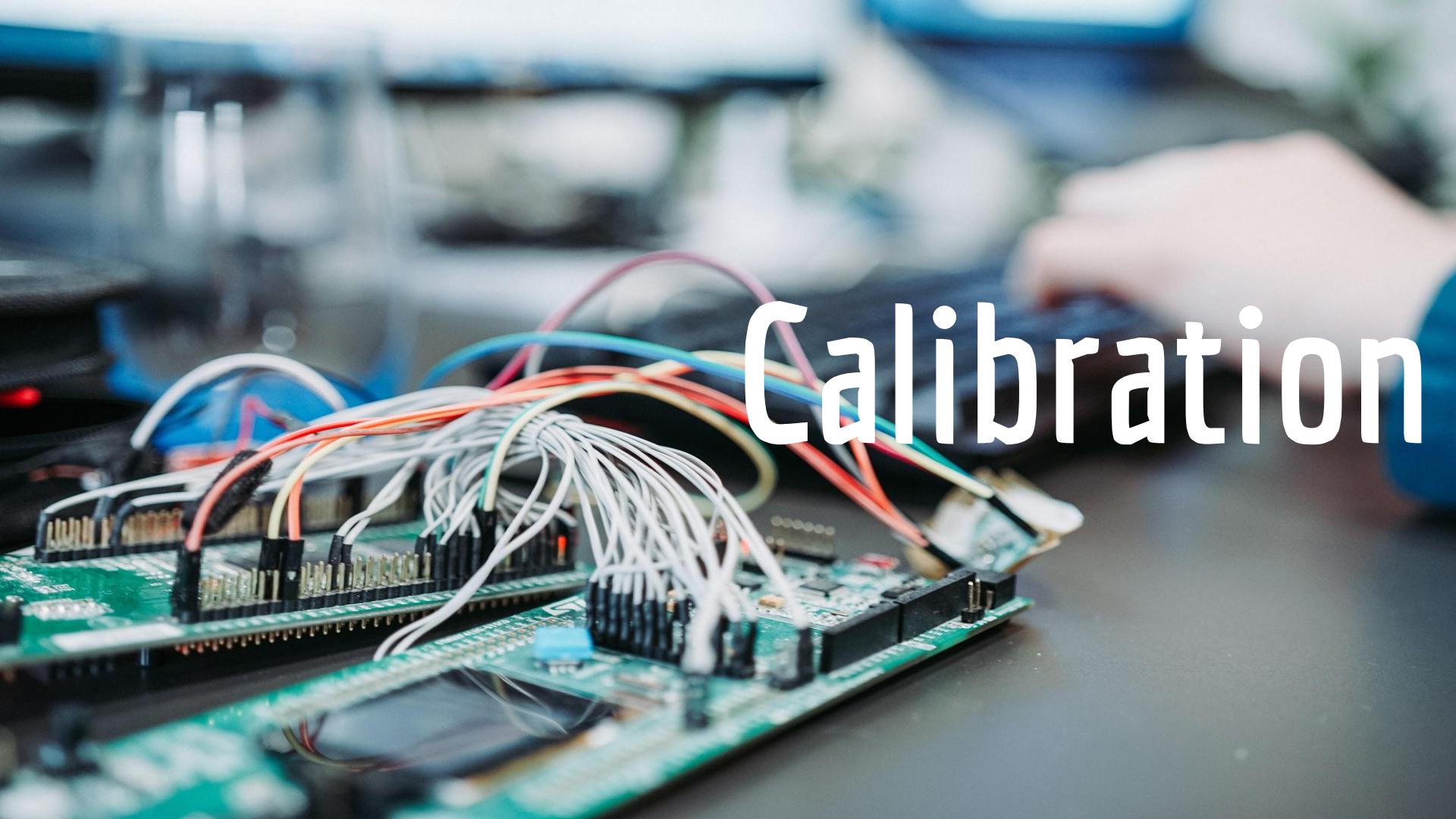


# ELECTRONICS

## Quad-copter circuit

Circuit Diagram of our quad copter.





# Calibration

# TRANSMITTER CALIBRATION

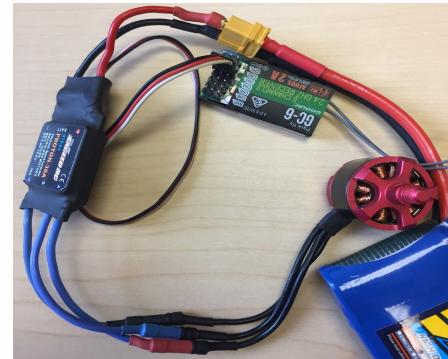
- Getting to Menu
  - Hold OK
  - Shows Functions and System
- Saving Settings
  - Hold Cancel
- Setting Model
  - System Setup
  - Select any Airplane Model
  - Save
- Setting Failsafe Switch
  - Functions Setup
  - Aux Channels
  - Channel 5 SWD
  - Save
  - End Points
  - Click OK until on CH5
  - Set left side of Ch5 to 64%
  - Save

[ENGR 7A NAZA Calibration Video](#)

# ESC CALIBRATION

- Transmitter Pairing (Before first ESC calibration)
  - Insert Binding Key to B/VCC
  - Power the ESC to power receiver
  - Hold binding button and turn on transmitter
  - Screen should say "RXBind OK"
  - Remove Binding Key before removing power
- ESC Calibration (One at a time)
  - Insert ESC three pin into CH3 (watch polarity)
  - Set left stick (throttle) to zero, wait for tones,
  - Move to full throttle slowly and back down

Calibration Circuit



Transmitter and ESC Calibration

# NAZA CALIBRATION

- Stick Calibration
  - Plug in the NAZA LED to the computer
  - Click on “Aircraft” and click on “QuadRotorX”(second picture)
  - Click on RC and click “Tradition” under receiver type (sliders should move when moving the sticks on the transmitter)
  - Click “START” and move the transmitter sticks to their maximum positions
  - Click “FINISH”
- Fail Safe Calibration
  - Flipping your failsafe switch should switch the mode between Failsafe and Manual under Control Mode Switch. (Also check MODE: at the bottom of the screen)
  - If this is not the case. Change endpoints until it does (Transmitter Calibration Sides)

[ENGR 7A NAZA Calibration Video](#)